EFFECT OF TRATAKA ON SELECTED PHYSIOLOGICAL AND COGNITIVE PARAMETERS OF YOUNG ATHLETES

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Abstract

In This Study Focus On Cognitive And Physiological Parameters Of The Young Atheletes. Here All The Subjects Are Releted From The Sports Field. Here finding the Difference Between Normal Group And Experimental Group With The Treatment Of Trataka Meditation. Training Will Give For Six Weeks .There Are Two Groups For The Training And Both Groups Are Divided With 15 Subject And Collection Of Data With Hlpe Of Some Questionnaire And Some Physiological Equipments. Here Data Collection Will Be In Three Times With Trataka Meditation (Pre, 4th Week, 6th Week). After Completing All The Formalities, We Will Use The Statistics Ancova As Physilogical Variable And Mancova As Cognitive Parameters.

Keywords: TRATAKA ,COGNITIVE , RESTING HEART RATE , SELF CONFIDENCE .

1.0 INTRODUCTION

According to Swami Vivekananda (1896), yoga is "the science of disciplining the mind and body through practice and self-realization"[1] Similarly, Patanjali, in the *Yoga Sutras* (circa 300 BCE), defines yoga as "Yogas Chitta Vritti Nirodhah," which translates to "Yoga is the cessation of the fluctuations of the mind"[2]

T. Krishnamacharya, often considered the father of modern yoga, describes yoga as "a way of life that integrates movement, breath, and meditation to develop self-awareness."[3]

B.K.S. Iyengar elaborates that yoga is "the journey of the self, through the self, to the self,"[4] emphasizing its transformative power. Yoga is an ancient discipline that has been practiced for centuries by seers, saints, and sages as a means to harmonize the body, mind, and spirit. Rooted in Indian philosophy, yoga serves as a holistic practice that extends far beyond mere physical exercise. Traditionally, it has been used to enhance flexibility in the spine and joints, maintain muscle suppleness, improve circulation, and fortify internal organs. However, its benefits are not limited to the physical realm. Yoga has been known to enhance mental clarity, boost concentration, relieve digestive issues, improve muscle coordination, and support weight management by regulating metabolism and reducing excess body fat.

Beyond its physiological advantages, yoga fosters a profound mind-body connection. Through mindful breathing techniques (pranayama) and meditative practices, it promotes mental relaxation, reduces stress and anxiety, and cultivates a sense of inner peace. Additionally, yoga has been shown to boost self-confidence, reinforce self-discipline, and instill a strong sense of resolve. By aligning the breath with movement, practitioners experience increased vitality, heightened energy levels, and a more balanced approach to life's challenges.

Given its extensive benefits, yoga is an invaluable tool for individuals across various domains, including professional athletes. In the highly competitive world of sports, where peak performance, endurance, and resilience are paramount, yoga provides a strategic advantage. It aids in injury prevention by recovery through improved circulation and muscle relaxation, and sharpens focus and mental fortitude. Furthermore, yoga cultivates a heightened awareness of bodily mechanics, allowing athletes to optimize their movements, maintain better posture, and develop a greater sense of balance and coordination.

This chapter explore how the practice of yoga can significantly enhance athletic performance, offering a comprehensive examination of its physical, mental, and emotional benefits. By integrating yoga into their training regimen, professional athletes can achieve superior performance, increased longevity in their

careers, and a sustainable approach to overall well-being.

1.1 STATEMENT OF THE PROBLEM

The primary problem addressed in this study is to determine the effect of Trataka on selected physiological and cognitive parameters among young athletes. Specifically, this research seeks to answer the following questions:

1. there is an significant effect of trataka meditation technique on selected physiological variables and cognitive parameters of Young Athletes ?

2. Whether there is an significant effect of different duration of trataka meditation technique on selected physiological variable and Cognitive Parameters of young athlete ?

OBJECTIVES OF THE STUDY

This study aims to:

- How trataka meditation helpful for physiological variables and cognitive parameters of young athlete.

- How trataka meditation helpful with time duration on the physiological variables of young athlete and cognitive parameters .

1.2 HYPOTHESIS OF THE STUDY

- There will be significant effect of trataka meditation technique on physiological and Cognitive Parameters of Young Athletes.
- There will be significant effect of time duration of trataka meditation on physiological and Cognitive Parameters of Young Athletes.

1.3 SIGNIFICANCE OF THE STUDY

The results of the work is expected to contribute to both the scientific and athletic communities. Young athletes often struggle with mental distractions, performance anxiety, and physiological stress. By understanding the impact of Trataka on these factors, this research can provide valuable insights into non-pharmacological and holistic methods to enhance sports performance. Additionally, this study may contribute to the growing body of research on yoga-based interventions in sports science.

For coaches and trainers, incorporating Trataka into training regimens could be a cost-effective, natural method to improve focus and physiological regulation. For athletes, this practice may offer a sustainable way to enhance their cognitive and physiological capacities, ultimately leading to improved competitive performance.

- **Contribution to Knowledge** – The study will enhance understanding in the fields of Yoga, Exercise Physiology, and cognitive parameters**.**
- **Comprehensive Insight into Trataka** – It will provide knowledge about the theories and practical techniques of Trataka meditation, covering both beginner and advanced stages**.**

- **Investigation of Meditation Effects** – The study will explore the impact of Trataka meditation on cognitive and physiological aspects**,** offering insights into its effectiveness.
- **Benefits for Athletes** – It may help athletes improve their cognitive and physiological functions**,** leading to enhanced sports performance.
- **Self-Assessment for Athletes** – The research will aid athletes in analyzing their strengths and weaknesses**,** enabling them to work on areas that need improvement.
- **Awareness and Knowledge Expansion** – The study will spread **awareness** about the benefits of Yogic interventions in sports, enriching the knowledge of coaches, athletes, researchers, and society regarding the role of cognitive and physiological aspects in athletic performance.
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SCOPE AND DELIMITATIONS

Based on the Researchers own interest, capacity and the scope of the study will delimited to the following points:

- The study delimited to the thirty [N = 30] national level male athletes from different games and sports
- The study further delimited to the subjects studying LNIPE NERC Guwahati.
- The age group of the subjects will be delimited to 18-23 years.
- Trataka Meditation Technique delimited to six week training including 5 days in a week.

The study will be further delimited to the following Physiological and Cognitive Parameters for the purpose of the study:

a) Physiological Parameters

- Resting Heart rate

Respiratory rate

- Blood pressure
- Systolic
- Diastolic

b) Cognitive Parameters

- Imaginary ability
- Self confidence
- Relaxation ability
- Goal setting
- Concentration
- Stress measure
- Emotional Intelligence

1.7. KEY TERMS

Yoga

The word 'Yoga' is derived from the Sanskrit root 'Yuj', meaning 'to join' or 'to yoke' or 'to unite'. As per Yogic scriptures the

practice of Yoga leads to the union of individual consciousness with that of the Universal Consciousness, indicating a perfect harmony between the mind and body, Man & Nature.

Trataka

A technique used in a meditation practice, is one of the six purification techniques ,called shatkarmas, of Hatha yoga. Trataka is a Sanskrit word, which means "to look" or "togaze.".(What is Trataka?, n.d.).

Respiratory rate

Respiratory rate is the number of breaths in a minute. The average breathing rate is 12 breaths per minute. Tidal volume (TV) is the amount of air breathed in with each normal breath.

Blood Pressure

The force of circulating blood on the walls of the arteries. Blood pressure is taken using two measurements: systolic (measured when the heart beats, when blood pressure is at its highest).diastolic (measured between heart beats, when blood pressure is at its lowest).

Resting Heart Rate

Resting Heart rate is number of time a person heart beat per minute. normal heart rate varies from person to person but the normal range for adults is 60 – 80 beats per minute.

Cognitive ability

The Meaning of Cognitive Is of Relating To Being, or Involving Conscious Intellectual Activity such as. Imaginary ability, Self-confidence, Stress measure, Concentration ability, Relaxation ability, Goal setting, emotional intelligence.

CHAPTER- II

REVIEW OF RELATED LITERATURES

Chattha, R., Nagarathna, R., Padmalatha, V., & Nagendra, H.

R. (2008)[1]. Effect of Yoga on Cognitive Functions in Climacteric Syndrome: A Randomized Control Study.. While focusing on yoga as a whole, this study included Trataka as part of the intervention and found significant improvements in cognitive functions among participants undergoing the yoga program.

Subramanya, P., & Telles, S. (2009)[2]. A Review of the Scientific Studies on Cyclic Meditation and Trataka. This review article summarized various studies on Trataka and cyclic meditation, concluding that these practices positively influence cognitive functions, including attention, memory, and executive functions.

Mallick, T., & Kulkarni, R. (2010)[3]. The Effect of Trataka, a Yogic Visual Concentration Practice, on Critical Flicker Fusion. This research investigated how Trataka influences critical flicker fusion (CFF), a measure of central nervous system activity. Participants practiced Trataka, and their CFF thresholds were assessed before and after the practice. Results showed a significant increase in CFF values post-intervention, suggesting enhanced neural processing and alertness due to Trataka.

Talwadkar, S., Jagannathan, A., & Raghuram, N. (2014)[7]. "Effect of Trataka on Cognitive Functions in the Elderly." This study aimed to assess the impact of Trataka on cognitive functions among elderly participants. Sixty subjects were randomly divided into Trataka and control groups. The Trataka group practiced a visual cleansing technique for 26 days. Assessments using the Digit Span Test, Six Letter Cancellation Test (SLCT), and Trail Making Test-B (TMT-B) indicated significant improvements in cognitive functions in the Trataka group compared to controls. The study concluded that Trataka can enhance cognitive abilities in the elderly.

Chapter- III

Selection Of Subjects

Total thirty [N = 30] male national level players will be purposively selected from Lakshmibai National Institute of Physical Education, NERC, Guwahati and then the subjects will be further randomly divided into two groups:

Group A: Trataka Group B:

Control Group

All the subjected selected for the study will have atleast an years of playing experience in national level tournament such as khelo India, all Indian inter University, open national as well as the senior and junior level. The subjects selected for the study will be free from any kind of chronic and acute injuries which distract their training. All the selected subjects undergo with the consent form during the training and data collection.

Selection of variables

on the basis of review of literature ,experts ,instrument availability ,and scholars own interest in the problem ,following physiological and cognitive parameters will be selected .

a) Physiological Parameters

- Resting Heart rate
- Respiratory rate
- Blood pressure Systolic/ Diastolic

b) Cognitive Parameters

- Imaginary ability
- Self confidence
- Relaxation ability
- Goal setting
- Concentration
- Stress measure
- Emotional intelligence

Criterion Measures

The criterion measure chosen for the testing of the hypothesis of this study on Selected Physiological and Cognitive Parameters of Young Athletes.

Cognitive Parameters	Questionnaire	Remark

S.No	Variables	Test Instrument	Unit	
1	**Resting Heart Rate** Imaginary ability Self-confidence Relaxation ability Goal setting	**Polar Ft 80 Digital Heart Rate Sensor** Bull's mental skill questionnaire(1996)	**Beat/minute** Percentage %	
2	**Respiratory rate**	**Observing The Chest Expansion Stop Watch**	**Beat/minute**	
3	Concentration **Blood Pressure Systolic Diastolic**	**Sphygmomanometer** Concentration questionnaire (Mahesh kumar mueenal and Yogesh kumar) .	**Mm/Hg**	
	Emotional intelligence	Emotional intelligence scale (anukool hyde,sanjyot pethe)		
	Stress management	Perceived stress scale		

Collection Of Data

Experimental Group-A (Trataka) will be given treatment 5 days a week i.e. on Monday to Friday, early in the morning/evening. The duration of the Trataka practice will be gradually increased throughout six weeks. And data will observe for three time with in 6 weeks.

1st week	4th week	6th week

Control Group-B They will be given no treatment.

Ten

Week	Befor practice	Rounds	Training	Time	After practice	Time
1st	Prayer	1	Trataka	4min.	Savasana	5min.
2nd	Prayer	1	Trataka	8min.	Makrasana	5min.
3rd	om chanting	5	Trataka	12min.	Balasana	5min.
4th	om chanting	5	Trataka	16min.	Savasana	5min.
5th	Gayatri Mantra	5	Trataka	20min.	Makrasana	5min.
6th	Gayatri Mantra	5	Trataka	24min.	Balasana	5min.

tative Schedule Of Concentration Practice Program

Statistical Technique

SPSS Software will be used for all statistical analysis Mean, standard deviation, standard error of mean, kurtosis and skewness will be used as descriptive statistics.For the analysis of selected physiological variables of young athlete, one way repeated measure ANCOVA will be used and analysis of selected cognitive variables as mental preparation of young athlete, one way repeated measure MANCOVA will be used at 0.05 level of significance

REFERENCES

Subramanya, P., & Telles, S. (2009)[2]. A Review of the Scientific Studies on Cyclic Meditation and Trataka.

Bhaduri, A., & Ghosh, D. (2016). Quantitative Assessment of Heart Rate Dynamics during Meditation: An ECG Based Study with Multi-Fractality and Visibility Graph. *Frontiersin Physiology*, *7*. https://doi.org/10.3389/fphys.2016.00044

Chandra, S., Sharma, G., Mittal, A. P., & Jha, D. (2016). Effect of Sudarshan Kriya (meditation)on gamma, alpha, and theta rhythm during working memory task. *International Journal ofYoga*, *9*(1), 72–76. https://doi.org/10.4103/0973-6131.171715.

Chaturvedi, R. (2008). *A Study on Tratak Sadhana on Memory Improvement* (Department of Psychology). Dev Sanskriti Vishwavidhyalaya, Haridwar.

Jensen, Pauline. S., & Kenny, D. T. (2004). The effects of yoga on the attention and behavior of boys with Attention-Deficit/hyperactivity Disorder (ADHD). *Journal of Attention Disorders*, *7*(4),205–216. https://doi.org/10.1177/108705470400700403

Krishna kumar, D., Hamblin, M. R., & Lakshmanan, S. (2015). Meditation and Yoga can Modulate Brain Mechanisms that affect Behavior and Anxiety- A Modern ScientificPerspective.*AncientScience*,*2*(1),13.https://doi.org/10.14259/as.v2i1.171

Om Sahana Vavatu—In Sanskrit With Meaning—Shanti Mantra. (n.d.). TemplePurohit - Your Spiritual Destination | Bhakti, Shraddha Aur Ashirwad. Retrieved January 11, 2020, from https://www.templepurohit.com/mantras-slokas-stotras/shanti-mantra/om-sahana- vavatu/

Raghavendra, B., & Ramamurthy, V. (2014). Changes in heart rate variability following yogicvisual concentration (Trataka). *Heart India*, *2*(1), 15. https://doi.org/10.4103/2321- 449X.127975.

Trataka – Candle Gazing. (n.d.). *Yoga|Energy with Danielle*. Retrieved December 21, 2019, from https://www.yogaenergy.ie/trataka-candle-gazing/